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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/720,144	04/09/2001	Theo Kreul	P00,1921	7505
29177	7590	08/11/2004	EXAMINER	
BELL, BOYD & LLOYD, LLC			TON, ANTHONY T	
P. O. BOX 1135			ART UNIT	
CHICAGO, IL 60690-1135			PAPER NUMBER	
			2661	

DATE MAILED: 08/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/720,144

Applicant(s)

KREUL ET AL.

Examiner

Anthony T Ton

Art Unit

2661

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 09 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 April 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☒ Certified copies of the priority documents have been received in Application No. PCT/DE99/01814.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 7/9/02 & 12/20/00.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_



**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claim 1** is rejected under 35 U.S.C. 102(b) as being anticipated by **Crisler et al.** (US Patent No. **5,193,091**) hereinafter referred to as **Crisler**.

**Crisler disclosed** a method for digital radio transmission of data between a base station and a plurality of subscribers in time slot frames, comprising the steps of:

transmitting payload data of a plurality of different subscribers in one time slot (*see Fig.7a and col.8 lines 1-9: voice messages (payload) communication units 103 and 104 (a plurality of different subscribers, time slot 700); and*

defining, by a position of said payload data in a time slot, a corresponding subscriber (*see Fig.7b: MSBC 1 – MSBC 8; and col.8 lines 23-28*).

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

4. The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. **Claims 1-3 and 5** are rejected under 35 U.S.C. 102(e) as being anticipated by **Padovani et al.** (US Patent No. 6,574,211).

a) **In Regarding to Claim 1: Padovani et al. disclosed** a method for digital radio transmission of data between a base station and a plurality of subscribers in time slot frames, comprising the steps of:

transmitting payload data of a plurality of different subscribers in one time slot (*see col.6 lines 44-48*); and

defining, by a position of said payload data in a time slot, a corresponding subscriber (*see Figs.5 and 8; col.5 lines 44-57, and col.29 line 63 - col.30 line 19*).

b) **In Regarding to Claims 2 and 3: Padovani et al. further disclosed** the method, further comprising the step of interleaving, symbol-by-symbol, block-by-block, data symbols of various subscribers transmitted within a time slot (*see Fig.6: Block interleaver 614; and col.18 lines 43-64*).

c) **In Regarding to Claim 5: Padovani et al. further disclosed** the method, further comprising the step of transmitting said data symbols of various subscribers to be transmitted encoded with a spread code (*see col.7 lines 49-58*).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claims 2 and 3** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Crisler et al.** (US Patent No. 5,193,091) in view of **Ohlson et al.** (US Patent No. 6,222,828) hereinafter referred to as **Ohlson**.

**Crisler disclosed** all aspects of these claims as set forth in claim 1.

**Crisler failed to explicitly disclose** the method, further comprising the step of interleaving, symbol-by-symbol, block-by-block, data symbols of various subscribers transmitted within a time slot.

**Ohlson disclosed** such a further step of interleaving, symbol-by-symbol, block-by-block, data symbols of various subscribers transmitted within a time slot (*see Fig.10 and col.20 lines 16-53*).

At the time of the invention, **it would be obvious** to a person of ordinary skill in the art to combine such a further step of interleaving, symbol-by-symbol, block-by-block, data symbols of various subscribers transmitted within a time slot, as taught by Ohlson with Crisler, so that consecutive communication data of a subscriber can be avoid from the impact of a burst loss during transmission. **The motivation** for doing so would have been to provide reliability to a radio communications network. Therefore, it would have been obvious to combine Ohlson with Crisler in the invention as specified in the claims.

8. **Claims 2-4** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Crisler et al.** (US Patent No. 5,193,091) in view of **Padovani et al.** (US Patent No. 5,659,569) hereinafter referred to as **Padovani**.

a) **In Regarding to Claims 2 and 3: Crisler disclosed** all aspects of these claims as set forth in claim 1.

**Crisler failed to explicitly disclose** the method, further comprising the step of interleaving, symbol-by-symbol, block-by-block, data symbols of various subscribers transmitted within a time slot.

**Padovani disclosed** such a further step of interleaving, symbol-by-symbol, block-by-block, data symbols of various subscribers transmitted within a time slot (*see Figs.5a-5d and Fig.1: block interleaver 24*).

At the time of the invention, **it would be obvious** to a person of ordinary skill in the art to combine such a further step of interleaving, symbol-by-symbol, block-by-block, data symbols of various subscribers transmitted within a time slot, as taught by Padovani with Crisler, so that consecutive communication data of a subscriber can be avoid from the impact of a burst loss during transmission. **The motivation** for doing so would have been to provide reliability to a radio communications network. Therefore, it would have been obvious to combine Padovani with Crisler in the invention as specified in the claims.

b) **In Regarding to Claim 4: Crisler disclosed** all aspects of this claim as set forth in claims 1 and 3.

**Crisler failed to explicitly disclose** data symbol blocks of subscribers who require a higher transmission quality are transmitted near a synchronization training sequence.

**Padovani also did not clearly disclose** data symbol blocks of subscribers who require a higher transmission quality are transmitted near a synchronization training sequence. **However, Padovani explicitly disclosed** a frame that is divided into different **time slots** used by control data (such as MM, BF, TT, TM), primary traffic (such as voice), and secondary traffic (such as data). Based on the disclosure of Padovani, the control data can be considered as training sequence data, the primary data would be considered as the data of a subscriber who requires higher transmission quality because voice has always required higher quality than data, and the secondary data can be considered as the data of another subscriber who has lower priority; and according to **Figs.2b** and **2c** of Padovani, in a frame the primary traffic is placed closer the control data than the secondary traffic. Therefore, data symbol blocks of subscribers who require a higher transmission quality are transmitted near a synchronization training sequence is obvious to a person of ordinary skill in the art.

At the time of the invention, **it would be obvious** to a person of ordinary skill in the art to combine such data symbol blocks of subscribers who require a higher transmission quality are transmitted near a synchronization training sequence as teaching in the instant claim with Crisler, so that higher quality data can be controlled more effectively. **The motivation** for doing so would have been to provide quality control to users in a radio communication network. Therefore, it would have been obvious to combine the instant claim with Crisler in the invention as specified in the claim.

9. **Claims 5-7** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Crisler et al.** (US Patent No. 5,193,091) in view of **Fukasawa et al.** (US Patent No. 5,533,012) hereinafter referred to as **Fukasawa**.

a) **In Regarding to Claim 5: Crisler disclosed** all aspects of this claim as set forth in claim 1.

**Crisler failed to explicitly disclose** the method, further comprising the step of transmitting said data symbols of various subscribers to be transmitted encoded with a spread code.

**Fukasawa disclosed** such a further step of transmitting said data symbols of various subscribers to be transmitted encoded with a spread code (*see Fig. 1, col. 1 line 36-45, and col. 2 lines 28-33*).

At the time of the invention, **it would be obvious** to a person of ordinary skill in the art to combine such a further step of transmitting said data symbols of various subscribers to be transmitted encoded with a spread code, as taught by Fukasawa with Crisler for transmission on two orthogonal carrier signals in a CDMA communication system. **The motivation** for doing so would have been to increase the number of users that can simultaneously access a radio communication network. Therefore, it would have been obvious to combine Fukasawa with Crisler in the invention as specified in the claim.

b) **In Regarding to Claim 6: Crisler disclosed** all aspects of this claim as set forth in claims 1 and 5.



**Crisler failed to explicitly disclose** the method, further comprising the step of employing a plurality of orthogonal spread codes having variable length for a simultaneous transmission of data symbols of a plurality of subscribers.

**Fukasawa disclosed** such a further step of employing a plurality of orthogonal spread codes having variable length for a simultaneous transmission of data symbols of a plurality of subscribers (*see col.8 lines 29-38*).

At the time of the invention, **it would be obvious** to a person of ordinary skill in the art to combine such a further step of transmitting said data symbols of various subscribers to be transmitted encoded with a spread code, as taught by Fukasawa with Crisler, so that the number of users that can simultaneously access a radio communication network. **The motivation** for doing so would have been to offer a way to serve more mobile stations without increasing the bandwidth of a downstream channel (*see Fukasawa, col.8 lines 38-41*). Therefore, it would have been obvious to combine Fukasawa with Crisler in the invention as specified in the claim.

c) **In Regarding to Claim 7: Crisler disclosed** all aspects of this claim as set forth in claims 1, 5 and 6.

**Crisler failed to explicitly disclose** elements of said orthogonal spread codes lie on a unit circle in the complex number plane.

**Fukasawa did not clearly disclose** elements of said orthogonal spread codes lie on a unit circle in the complex number plane. However, **Fukasawa explicitly disclosed** an adaptive predictor comprising a transversal filter with four adaptive poles, which are monitored, and modification of the coefficients is suspended if these poles move outside the stable region (*i.e. the unit circle on the complex plane*), and **Fukasawa also disclosed** a spreading modulator

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comprises a plurality of spreaders I and Q, in which the I and Q component are treated as the real and imaginary parts of a complex number (*see Fukasawa, col.14 lines 35-46 and col.20 line 20 – col.21 line 45*). The elements of said orthogonal spread codes lie on a unit circle in the complex number plane in a CDMA communication system can therefore result in obviousness to a person of ordinary skill in the art.

At the time of the invention, **it would be obvious** to a person of ordinary skill in the art to combine such elements of said orthogonal spread codes lie on a unit circle in the complex number plane as teaching in the instant claim with Crisler, so that spreading codes can be controlled effectively. **The motivation** for doing so would have been to provide quality communication data to mobile stations, and provide stability to a downstream channel. Therefore, it would have been obvious to combine the instant claim with Crisler in the invention as specified in the claim.

#### ***Examiner Information***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony T Ton whose telephone number is 703-305-8956. The examiner can normally be reached on M-F: 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas W Olms can be reached on 703-305-4703. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ATT  
8/8/2004

*Phirin*  
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8/9/04